THE OPTICAL MAGIC LANTERN JOURNAL
AND PHOTOGRAPHIC ENLARGER.
EDITED BY J. HAY TAYLOR.
A MAGAZINE OF POPULAR SCIENCE FOR THE LECTURE-ROOM AND THE DOMESTIC CIRCLE.
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NOTICES.

The *Optical Magic Lantern Journal and Photographic Enlarger* is issued on the 1st of every month, price One Penny, and may be obtained from all Newsvendors, Railway News Stalls, Photographic Dealers, or from the Publishers, at the following rates, post free:—

		United States.
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Exchange Column, General Wants, &c. (not Trade)—First 20 words, 6d.; and for every 3 additional words, 1d.

Small Advertisements must reach the office not later than the first post on the 24th of each month. All cheques and postal orders to be made payable to the Magic Lantern Journal Company, Limited.

Editorial communications must be addressed, J. HAY TAYLOR. Advertisements and business communications to the **Magic Lantern Journal Company, Limited, 9, Carthusian Street, London, E.C.**

American Agents:—The International News Co., 83 and 85, Duane Street, New York City.

Lantern Slide COMPETITION.

The Directors of this Journal Company, have pleasure in offering **CASH PRIZES** to the value of

£6 . 6s.

for the **BEST SET OF FOUR LANTERN SLIDES.**

The slides may consist of any landscape, and (according to the conditions mentioned) must be delivered on or before October 31st, addressed "Slide Competition," Magic Lantern Journal Company, Limited, 9, Carthusian Street, London, E.C.

CONDITIONS.

1.—Open to all comers, excepting professional lantern slide makers.

2.—Prize slides to become the property of the Magic Lantern Journal Company, Limited, with permission for reproduction in the Magic Lantern Journal if desired; and the negatives of successful slides to be sent for inspection if required.

3.—Slides may be made by any process, on any make of plates, and must be the actual work of the competitor, including the taking of the negatives.

4.—Slides to be 3¼ in. square. The Judge's decision to be final.

5.—All competitors must enclose the **COUPON** cut out from the bottom of this notice.

6.—A *nom de plume* must be attached to each set, and the name of the competitor placed in a sealed envelope, which must be endorsed with the *nom de plume*.

7.—As many sets of four slides as the competitor likes can be sent, so long as a separate *nom de plume* and coupon accompanies each set.

Cheques will be sent as follows to the winners:—

1st Prize	£3 . 3s.
2nd „	£2 . 2s.
3rd „	£1 . 1s.

COUPON—SLIDE COMPETITION.

M. L. J. CO., LTD. *October 31st*, 1896.

NOTES.

Our Annual.—Our Annual, which was published three weeks ago, has been in good demand, and flattering letters about same come to hand daily.

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£6 6s. Prize.—It will be noticed that Rule 2 on the previous page has been altered from "The slides to become," etc., to "the PRIZE slides to become," etc.

◆ ◆ ◆

Mr. Matthews' Address.—On page ix. of the advertisements in our last number there appears to have been an error in printing Mr. Matthews' address in many of the copies; it was described as L. Matthews, Stratford House, Hadley, New Barnet, whereas it should have appeared as follows:—L. Matthews, Strafford House, Hadley Green, Barnet.

◆ ◆ ◆

Physic or Spirit Photography.—Of late we have received quite a number of letters of enquiry as to the best plates to use, mode of development, means of lighting the subject, conditions required, etc., in order to obtain spirit photographs. From the style of the letters it seems to be apparent that by many, we are looked upon as an authority in connection with this subject. We would therefore inform our correspondents that we have had no experience whatever in connection with spirit photography, consequently are quite unable to afford them the desired information.

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An Oxygen Home.—It may not generally be known that in London there is a home in which wounds and ulcers are treated with oxygen gas. This home has been established at 35, St. George's Square, S.W., under the presidency of the Baroness Burdett-Coutts, assisted by a strong committee. It is claimed, after exhaustive experiments, that many wounds, etc., which have been considered incurable, are amenable to the treatment afforded at this institution. Special apparatus are employed for various parts of the body, but the parts to be treated are encased in a species of box in which is introduced a mixture of half air and half oxygen. Immediately on application pain is relieved and healing rapidly sets in, and as an average of necessary time of treatment from six weeks to two months may be mentioned. It has also been found that on the parts so treated the growth of hair is accelerated.

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"Ben Hur."—On one or two occasions we have commented on the action taken against the New York branch of Messrs. Riley Bros., by Messrs. Harper for an alleged breach of dramatic rights in "Ben Hur," in which they claimed ten thousand dollars. The case has now been settled, and is in favour of Messrs. Riley Bros.

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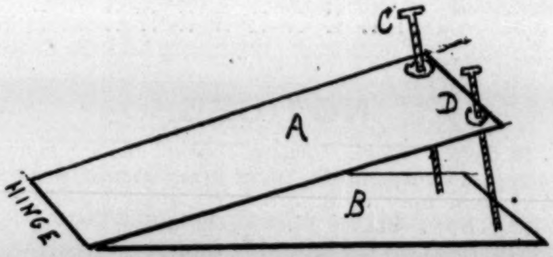
Royal Photographic Society's Forty-first Annual Exhibition.—On Saturday, the 26th ult., this exhibition was opened as usual at 5a, Pall Mall East, with a conversazione. It will remain open daily (Sundays excepted) until Thursday, 12th November from 10 a.m. till 5 p.m. It will also be open on Monday, Wednesday, and Saturday evenings from 7 to 10 p.m., when lantern slides will be shown.

◆ ◆ ◆

Tilting Board for Lantern.—At the time of going to press with the last journal, the electro describing the tilting board mentioned in the article on apparatus by Mr. Fred J. Scrimgeour (page 141), had not come to hand from the foundry. From the illustration herewith, it will be seen that the tilter is constructed in a very simple manner. (A) is the tilting table, (B) is the base, and (C D) two screws which screw into plates on (A).



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Congregational Union.—The Congregational Union of England and Wales is arranging a series of lantern slides and lectures illustrating the history, trials, and triumphs of Nonconformity. The slides are to be lent on payment of a small fee.

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Lantern Slide Exchange Club.—Mr. A. J. Richardson, of Summerville Dore, near Sheffield, who has for the last four years been the hon. sec. to the above club, having resigned, Mr. J. S. Hawker, of Mutley House, Plymouth, has been appointed secretary, and will be glad to hear from any lady or gentleman desirous of joining the club. The subscription is nominal.

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Professor Rontgen's Visit to London.—About the end of the present month, or the beginning of next, it is the intention of Professor Rontgen, the discoverer of the Rontgen rays, to visit this country. On the occasion of this visit there is sure to be a great stir in scientific and other circles, and it is even rumoured that arrangements are being made in connection with his presentation to the Royal Family.

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Decadence of the Magic Lantern.—In a paragraph in the *Daily Telegraph*, the writer thereof thus gives his views on the subject of the magic lantern, and we may here say that had he taken the trouble to make enquiries in the proper quarters he would not thus have written. He says:—"One by one the recollections of childhood seems to be disappearing. Tastes have changed, and many institutions that were dear to the hearts of youngsters a quarter of a century ago no longer receive popular support. Among these must be classed what was once the magic lantern, but what is nowadays a costly scientific instrument, the very mechanism of which is enough to alarm the purchaser before he has dared to inquire the price. Lantern slide making—an industry without which all the phantasmagoric apparatus ever invented is of little use—is on the down grade, and the only explanation is that the public demand for this form of combined recreation and instruction has diminished within recent years. The decadence of the magic lantern is an event that will be regretted by many who are not concerned with its commercial aspect at all."

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Wedding Bells.—The day after we went to press with our last issue, Mr. J. E. Thornton, of the Thornton-Pickard Manufacturing Company was married at Southport to Miss Heaton. We tender our congratulations.

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Transfer of Business and Change of Address.—The photographic department of Percy Lund & Co., Limited, has been taken over by Messrs. Appleton & Co., of Bradford. This change has been effected so as to permit of the former firm devoting more energy to their growing publishing and printing business. The London branch, which was located at Memorial Hall, has been removed to new and larger premises at 3, Amen Corner, Paternoster Row, London, E.C. In future the firm will be known as Percy Lund, Humphries & Co. (Ltd.)

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Fire at Earl's Court.—A fire lately occurred at Earl's Court in connection with Kiralfy's spectacle. It appears that by some means or other the oxygen tube of one of the limelight boxes blew off the jet, and so augmented the flame from the hydrogen, that the surroundings were speedily ablaze. Energy was at once brought to bear to put out the fire, in connection with which, Mr. Wotton, who was officiating at the limelight, got his hands severely burned. A large proportion of the audience made a hasty exit, and some of the dancers fainted. The Royal box was partly destroyed, but after a short interval the performance was resumed.

◆ ◆

Photographic Conversazione.—America again takes the cake with regard to photographic novelties in the social line. The latest style is a meeting where the ladies bring photographs of themselves taken during childhood. The men folks pay a stated sum for the privilege of guessing the originals from the photographs, and if they succeed have the honour of taking the original in to supper, and likewise paying for same. During the time we were writing this paragraph for the printer, we had a visit from a friend who remarked that it is often a much simpler feat to pick out the original from a picture taken several years before, than for one to discover and recognise the original from a photograph taken practically a few days ago. We asked why. But he simply said, "It is the retouching as does it."

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Dissolution of Partnership.—The following notice in connection with Taylor, Taylor, & Hobson, the well-known opticians, has been issued:—"Notice is hereby given, that the Partnership heretofore subsisting between us the undersigned Thomas Smithies Taylor, William Taylor, and Herbert William Hobson, carrying on business as Scientific Instrument Makers at Slate Street, Leicester, and No. 8, Charing Cross Road, London, under the style or firm of Taylor, Taylor, & Hobson, has been dissolved by mutual consent as and from the first day of September, 1896. All debts due to and owing by the said late firm will be received and paid by the said Thomas Smithies Taylor and William Taylor, who will continue to carry on the business."

Field's Opaque Screen.—A new form of screen is being introduced by Messrs. Field & Co., of Birmingham. We have lately tried it and find that it gives superior illumination to any screen hitherto sold. A brilliantly illuminated picture of 10 ft. can with it be obtained with an oil lamp. The screen is faced with silver in a peculiar way. It is certainly the best screen extant.

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Church Defence Institution.—As many as 300 lantern slides have lately been prepared by the Church Defence Institute, which are said to cover the whole period of English Church history. This institute goes into the matter in quite a business style, and will lend the slides at the rate of 5s. for sixty, with an additional charge of 2s. 6d. for carriage to and fro, with strict conditions that the slides must be returned the morning following the exhibition. Several energetic lecturers have also been engaged, including the Rev. C. A. Lane. Speaking of this gentleman, we understand that on the day of our going to press, he is to deliver a special lecture at Lavender Hill, S.W., by the special desire of Canon Erskine Clarke, on "The Personal History of Queen Victoria."

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A Strange Lighthouse.—At Stornaway Bay, Scotland, there is a lighthouse which has neither lantern nor keeper, yet at sundown it gives off a brilliant light. This is effected as follows:—On the Island of Lewis, between five and six hundred feet away, there is a lighthouse, and from this, light is reflected on a mirror in the first-named lighthouse, and is then sent in various directions by means of prisms.

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Exhibition at India.—During January and February next the ninth annual exhibition of photographs in connection with the Photographic Society of India will be held at Calcutta. All pictures, etc., must be sent carriage paid, addressed to the Exhibition Secretary, Photographic Society of India, 57, Park Street, Calcutta, not later than December 24th.

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A Lucid Explanation.—A New York physician says that by using X rays he has found the stereytococcus erysipelatosus proliferating in the interspaces of the connective tissues. To this an evening paper asks:—Why does he not inform the police.

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Spontaneous Ignition of Coal.—Professor Meden, who had made a special study of this subject, gives it as his opinion that the spontaneous ignition of coal is directly traceable to the oxydation of iron pyrites, no coal being entirely free from sulphide of iron.

◆ ◆ ◆

Short of Gas.—A correspondent writes that during his visit to Norfolk, he attended an exhibition given by a London lecturer, and when the lecture was half-way through it had to be announced that the "gas" had run short. We presume our correspondent referred to oxygen gas and not "speech" gas, as he did not say which. Anyway, there was bad management somewhere.

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The Newnes' Lectures.—Messrs. Geo. Newnes and Co. are preparing two lectures and sets of slides for loan this season. The titles are "Behind the scenes of popular journalism," and "Popular authors and their work."

A Few Words about Saturators.

FOR a number of years ether saturators were made and tried by private individuals with more or less success (often less), but it at last became apparent to certain persons that there was a future before this form of limelight. Notwithstanding the "cold water" that was thrown upon this mode by prejudiced writers, the subject was continued experimentally by a few earnest workers, until practically perfect instruments have been evolved, and the confidence that was at one time upset, restored.

Perhaps one of our oldest experimenters in this line is Mr. Thomas Timberlake, who has made models innumerable during the last twenty-seven years, and who, a few years ago, produced one that he could with confidence recommend to lanternists endowed with ordinary common sense; this saturator is now largely used and will be alluded to later on.

It might be well here to explain the principles of a saturating apparatus for producing limelight. These are very simple, and can be explained in a few lines.

Given a supply of oxygen, which we will presume to be compressed in a cylinder, a short piece of tubing is attached to this, and in order to obtain two currents of the oxygen a Y piece of piping is then secured to the first piece of tubing. By turning on the cylinder, which should be provided with a regulator, it is obvious that there will be two streams of oxygen. One stream is conducted to a small receptacle containing (say) a sponge which has been saturated with (say) ether. This stream enters, we will suppose, at the bottom, and after passing through the sponge is drawn off at the top, and the supply can then be led by tubing to the hydrogen side of an ordinary mixing jet, when on applying a light, it will be found to burn in a manner similar to house gas. Here, then, we have the jet provided with the equivalent of hydrogen, but from a receptacle containing oxygen. We have, as shown, another stream of gas coming *via* the Y piece, this then is conducted direct to the oxygen side of the jet, whence it emerges, of course, in the form of pure oxygen. By placing a piece of lime immediately in front of the nipple of the jet, we have all the conditions requisite for limelight with a mixed jet.

One of the early forms of saturators was known as the Broughton tank. It consisted of a copper tank which contained a series of shelves soldered to three sides, the communicating openings being placed on alternate sides. The oxygen was admitted in such a way that it bubbled along through each shelf commencing with the lowermost, and by the time it reached the exit on the top, the gas was pretty well saturated.

A modification of this tank was advocated by the Rev. T. Hardwich, who constructed a saturating tank in which he placed the shelves or partitions upright, making the communicating spaces respectively at the top and bottom. In these two forms the ether was simply poured in in bulk. They certainly worked well in careful and experienced hands, but the very fact of the ether being in bulk, caused them to be looked upon with a certain amount of distrust, especially as one or two accidents occurred with them.

Later on, a barrel saturator was tried, and had a good innings. In this form the ether was not placed in, in bulk, but was soaked up by flannel or other materials, through which the oxygen passed in a circuitous route, thus taking up the vapour. Subsequent experiments showed that with this style, although the light at first was good, it rapidly deteriorated, but on the application of a little heat its powers were prolonged.

Somewhere about 1886 a saturator was tried in Berlin which gave off vapour for an extended period. This was owing to means being adopted for applying heat, and in this instance the saturator was entirely surrounded by a hot water bath.

The chief difficulties in connection with the saturator method of obtaining the limelight were in obtaining perfect saturation of the gas, for just as soon as the hydrogen supply of the oxygen became insufficiently saturated, it would be obvious that the hydrogen side would contain a percentage of pure oxygen; consequently, it became necessary to turn off more or less the direct oxygen supply. As soon as this had to be done, an explosive compound was being used, and under these conditions when the "turning out" time came, there was as often as not a "pop," which on some occasions might be classed as an explosion which was calculated to startle those close at hand.

Mr. Scott, of Cardiff, brought out a saturator in which he placed between the saturator proper and its outside jacket a night-light, and this was hailed as a great improvement over then existing methods. His saturator was somewhat large and bulky, but doubtless would have undergone alteration at the hands of the inventor; but unfortunately he contracted a fatal illness, and the supplies to the lantern dealers ceased.

As stated in the early portion of this article, Mr. Timberlake had been at work for many years in conducting experiments with saturators, and after years of patient toil he came to the conclusion that a stuffed saturator which could be placed bodily in the lantern, was the best and safest form; but as his experiments were tried principally for his personal satisfaction, all these experiments were conducted without any flourish of trumpets, but as soon as Mr. Lawson put upon the market a stuffed saturator to go into the lantern, Mr. Timberlake decided to enter the commercial field with one of those that he had found to work with certainty. On one occasion we had in our possession some nine or ten models with which he had been experimenting for several years past.

Then came the "Gridiron" saturator, followed by the "Climax," the "Optimus," and the "Pendant." Of these the "Climax," "Gridiron," "Lawson" and "Timberlake No. 1" are complete in themselves, the jet being part and parcel of them, whereas with the "Optimus," "Pendant" and "Timberlake No. 2," any jet can be used in conjunction with them. All these saturators with the exception of the "Pendant" are placed inside the lantern, whereas the latter is hung behind on the lantern and derives its heat in this manner.

Nearly all these saturators have undergone a change since they were first introduced, many being made in the first instance too small to hold a sufficient supply of ether to last for the usual length of an exhibition.

With regard to the brilliancy of the light obtained with the saturating principle, there is practically no difference between its use and that of two gases, but as some of the saturators which are self contained are provided with somewhat small nipples, it would hardly be fair to compare them with any mixed jet unless both were provided with the nipples of the same capacity. There are also other things to be taken into account, but in order to deal fully with all details several pages would be required.

We will just add a word or two to those who have had little or no experience in the use of saturators. If during their use it is found that the lime remains incandescent when the direct oxygen supply is turned off, it denotes that the supply of ether is becoming exhausted, and that a certain amount of free oxygen is also passing at the hydrogen side; but although this light can be thus maintained for a time, it is not improbable that a slight "pop" may occur when turning out. Theoretically, when putting the light out the pure oxygen should first be turned out. In practice, for the reason just stated, it is recommended to turn out the ether side first.

The Dallenger Method of Making Diagram Slides.

By H. WOOD.

SCRATCHING diagrams on gelatine celluloid and other substances has been advocated when one wished to make a small tracing to project by means of a lantern. These scratchings have to be filled in with black in order to enable them to be seen clearly, and they have the disadvantage—that if a mistake is made it cannot altogether be eradicated; besides, it is no easy matter to thus etch a line, as there is a great tendency for the point to run more or less to one side.

The Dallenger method—used first by Dr. Dallenger—is to get a piece of extremely fine ground glass, lay it upon the diagram to be copied, and trace it with pencil. Should it be required to take out certain lines, these are easily rubbed out with a piece of rag and water.

When the sketch is finished the glass is coated with spirit varnish, which intensifies the pencil marks, and at the same time renders the ground glass quite transparent, as the varnish fills up the inequalities caused in the grinding; and thus to all intents and purposes converts the glass again into clear glass, so that the diagram appears as though it had been drawn with Indian ink upon clear glass.

Apparatus for Manufacture of Acetylene Gas.

ACETYLENE is produced by placing calcium carbide into water, or inversely by pouring water on to calcium carbide. The first method appears to be the more rational of the two, for the excess of water enables cooling of the gas and dissolution of the traces of ammonia which may be evolved at the same time as acetylene. With the second method, on the contrary, the attack of carbide by a limited amount of water causes a rise of temperature which may cause an abnormal increase of pressure, and at the same time there may be a formation of liquid hydrocarburets, benzine, etc., and a decrease in the lighting power of the acetylene. This second method is, however, that which has been more generally followed by makers on account of the greater facility in regulating the current of water.

The number of apparatus proposed or constructed for the manufacture of acetylene is already considerable, and daily increases. It would be too long and tedious to describe all of them; besides, none as yet is warranted by an extensive practice, and it would be premature to express an opinion as to which of these apparatus is the best.

The acetylene-making machines can be grouped in three classes:—(I.) Those in which acetylene is made at a pressure slightly greater than that of the atmosphere. (II.) Those which enable its production at all pressures, even to liquefaction. (III.) Those mainly intended to manufacture liquid acetylene.

Apparatus of Class I.—These apparatus have a common characteristic, viz., they are composed of two distinct parts, a generator and gasholder. We consider it needless to describe the holder; as for the generator, it is constructed to give a regular production proportional with the consumption, and the idea is to maintain automatically a constant volume or pressure. The methods to attain this are varied. For example, the displacements of the bell of the gasholder are utilised to open or shut the water discharge cock, or to regulate the difference of level of water in the generator and gasholder.

The following is a brief description of some of these apparatus:—

Trouvé Apparatus. (Fig. I.)—The principle of the gas generator is that of the gas lamp already applied by Mr. Trouvé in his portable lamp. This generator consists of two vessels fitting one in the other. The inner vessel is fitted at the top part with an escape tube communicating by a cock with the gasholder, it contains a hanging open work support or basket for the calcium carbide. In the base of this vessel is an opening by aid of which it communicates with the outer vessel containing water. The latter finds its level in both vessels and attacks the carbide, and the acetylene gas evolved passes into the gasholder. At the same time, the excess of pressure drives the water into the outer vessel and prevents its contact with the carbide. The latter, however, continues to be slowly influenced by the action of moist air. If the cock of the apparatus is kept closed, the gas accumulates in the inner vessel, and soon escapes through the opening in the base, raising the column of water. Mr. Trouvé endeavoured to remedy this inconvenience by placing in the basket distinct layers of carbide separated by glass discs. He also fitted his apparatus with electric bells to give warning when the holder was either too full or on the point of being emptied.

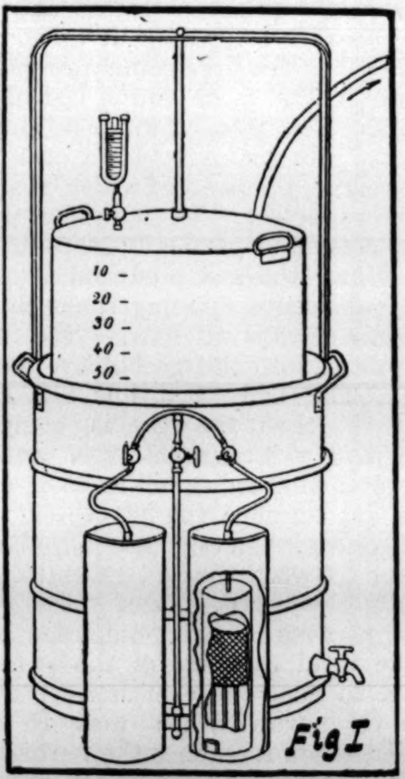


Fig I

Clauzolle's Apparatus. (Fig. II.) — This apparatus consists of the gas generator (A) hermetically closed containing carbide, a water tank (B) communicating with (A) by a special cock (H), a gasholder (D) united with (A) by the tube with cock (K). The cock (H) is worked by a lever attached at its extremity to a chain dependent on the movements of the holder. As this last ascends or descends it shuts or opens the cock (A) for inlet of water. The recipient (A) has a lid fastened by four nuts and is

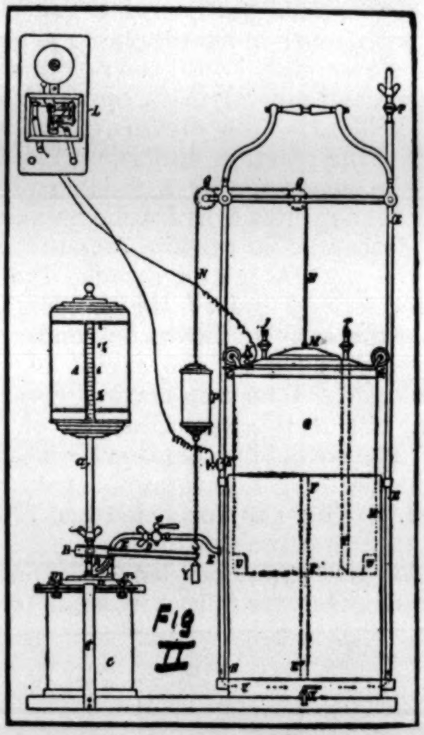


Fig II

Fig III

removed when a fresh supply of carbide is required; the recipient is replaced by another after shutting cock (K) so as to retain the gas in the holder.

APPARATUS OF ACETYLENE COMPANY. (Fig. III.)—This apparatus consists of a generator furnished with level indicator tube, a gasholder, annular crown united with the holder surrounding the vat and moving in an opposite direction to the holder. This crown contains water serving for the reaction and is united with the base of the generator by a flexible pipe. The ensemble constitutes a hydraulic balance; if the holder descends, a certain amount of water enters the generator and attacks the carbide. The gas formed raises the holder, and accordingly the annular crown descends, receiving the water expelled by the excess of pressure. Equilibrium is thus automatically established between the respective pressures of gas and water. The carbide is contained in a cylindrical basket inside the generator and is very regularly attacked. The gas formed runs through a flexible tube into the gasholder.

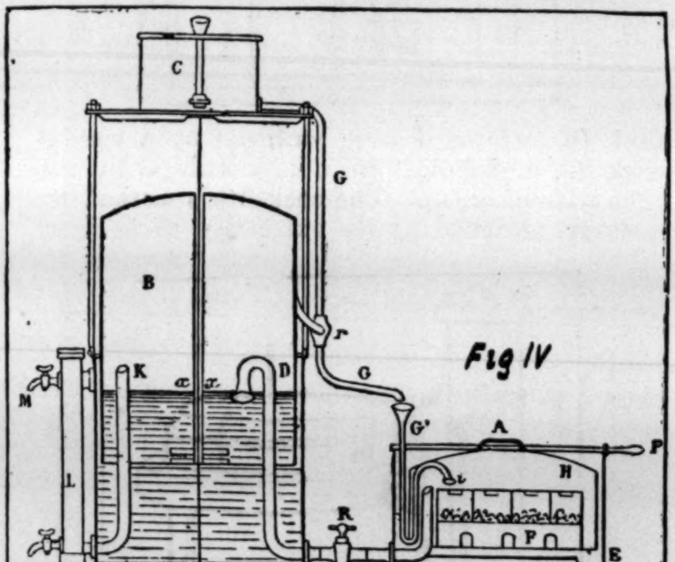


Fig IV

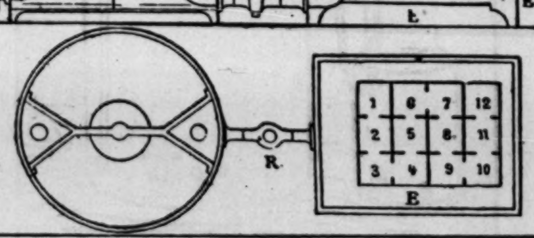


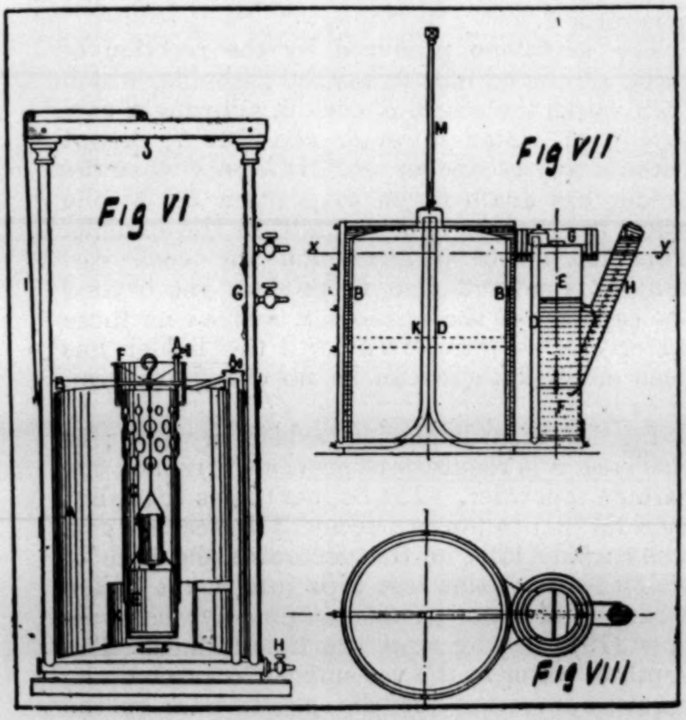
Fig V

BON APPARATUS.—Acetylene is generated by the reaction of water falling in small quantities on the carbide contained in the generator (A) (Figs. IV. and V.). The latter is divided into compartments (F) which when filled with carbide are only attacked by water successively and progressively. When the carbide of the first compartment is exhausted the water enters the second and so on. The size and number of these compartments vary with the dimensions of the apparatus; each of them contains 7 ozs. to 4·410 lbs. of carbide. The compartment box (F) is covered with a rectangular bell (H) which dips into a pan (E) with flat bottom open at the top and filled about one-third with water as far as a line marked outside.

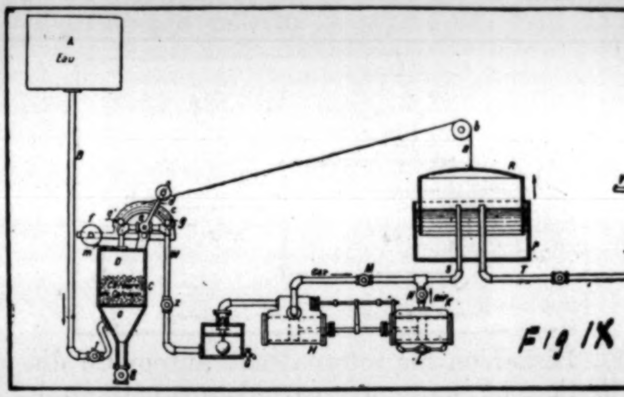
The bell (H) is furnished with a lead pipe (G) terminating in a funnel into which the water, passing through pipe (G) from the tank (C), falls. This water is discharged at the end (I) of the pipe (G^1) into the first compartment. Each of these compartments has a notch at the top of the partition, separating it from the next, through which the water can pass into the neighbouring compartment as soon as the gas produced in the first compartment has left the gasholder, and so on to the last of the compartments. The flow of water by the pipe (G) is regulated automatically by a cock (R) with counter-weight, the head of which rests on the bell of the gasholder. In ascending, the holder shuts the cock and gradually stops the flow of water. When the gas produced is consumed, the holder descends opening the cock, and the water again begins to flow. The acetylene evolved passes into the gasholder (B) through pipe (D). The end of this last is bent in a swan's neck, thus the gas is compelled to circulate in 3 to 4 centimetres of water where it cools, and gets rid of all trace of ammonia. The cock (R) on pipe (D) has three passages; the first opens, and the second closes communication between the gas generator and the gasholder; the third, places these two parts of the apparatus in communication with the air. The total capacity of the gasholder is calculated so that the acetylene, produced by a single compartment (F) may be retained. The holder, when it reaches the top of its course, shuts the water cock; hence, there is no fear of over-production.

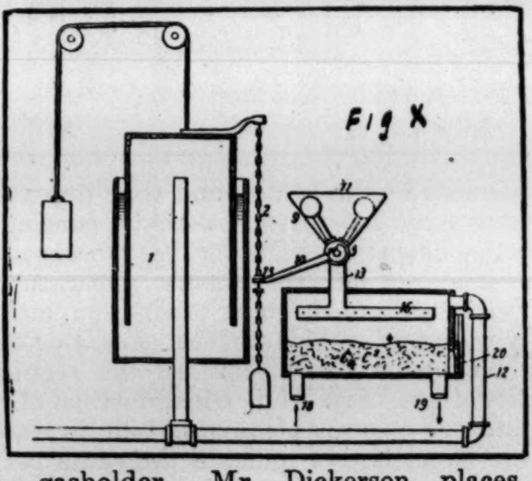
After leaving the gasholder by the pipe (K), the acetylene passes through a purifying column (L) filled with pumice stone saturated with sulphate of copper, with a slight layer of calcium carbide at the top. The sulphate of copper is intended to free the gas from phosphuret arseniuret of hydrogen; the layer of carbide acts as a dryer. For the gasholder it is well to employ salt water instead of ordinary water, as acetylene is very little soluble in the former.

LEQUEUX-WIESNEGG APPARATUS.—The apparatus represented by Fig. VI. can be employed for lectures. It consists of a vat (B) and a bell (A), with a large opening at the top part closed by hydraulic stopper (F). The apparatus being at the lowest point of its course, and ready to be filled with acetylene, the stopper (F) is removed, as also the basket (D) and bucket (E) united. The amount of carbide requisite to fill the holder is placed in the basket. After taking care to place a certain amount of water in the groove forming the hydraulic joint of the stopper (F), the ensemble is placed (E. D. F.) in the tube (C) quickly, to avoid escape of gas. The holder at once ascends, owing to production of acetylene. The gas re-descends by a tube as far as the bottom of the vat, and ascends laterally in a column (G) serving as guide for the holder, and support for the cocks intended to discharge the gas at the utilisation points. A cock (H) at the lower part of the apparatus enables clearing of the pipes in case of condensation of water. The apparatus represented in Figs. VII. and VIII. is continuous. It consists of a holder with a double bell, that is to say, arranged in such a way as to bring as little liquid as possible into contact with the gas produced, and thus avoid dissolutions and losses. The holder consists of a vat (A), movable bell (C), and a fixed bell (B). The generator (E) is formed of a cylinder, at the bottom of which is a bucket (F), to contain the main part of the lime resulting from the reaction. It is shut by a lid (G) with hydraulic joint, simple or multiple, according to the pressure required, and which may reach 30 centimetres of water, pressure necessary for working the standard lamps of Mr. Violle. The figure represents the bell at the lowest point of its course, but under a pressure of 30 centimetres. When the bell falls, owing to employment of gas, it suffices to throw some pieces of carbide through the pipe (H) to obtain a new evolution of acetylene.

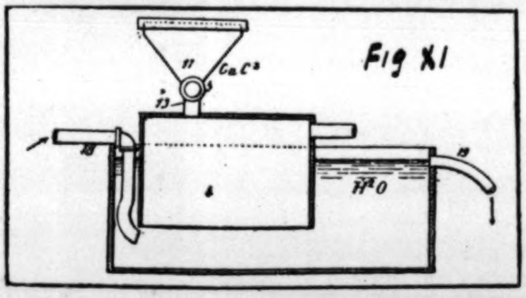


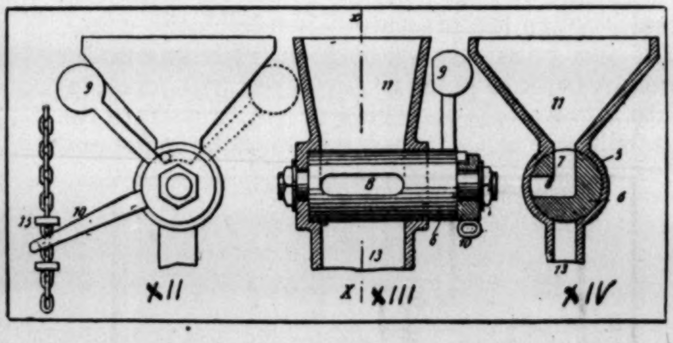
Mr. E. N. Dickerson's Apparatus.—Mr. Dickerson, of New York, patented June, 1895, several arrangements for automatic regulation of the production of acetylene according as consumed. In the apparatus represented (Fig. IX.) the water is conveyed from a sufficiently high reservoir (A) by the pipe (B) into the generator (D) on the carbide (C) placed on a grating (O). The acetylene forms when the water reaches the carbide, and its evolution ceases when the pressure drives back the water. The gas passes by a stop-cock (E) with counter weight (D) into pipe (W) furnished with cock (Z) into the automatic regulator (G), then into the gasholder (PR). Between the regulator (G) and the gasholder, Mr. Dickerson places an arrangement formed of a machine (H) working by pressure of gas an air-pump (K), when a mixture of air and acetylene is to be conveyed into the gasholder. This arrangement is





evidently useless when only acetylene is collected. The gas leaves the holder, passing through pipe (T) to the burners (V). When the bell (R) is filled, the cord or chain (A) running on pulley (B) turns the balancier-sector (FC) until the pin (G) encounters the lever with counter-weight (D) of the stop-cock (E). In return of the chain the other pin (G) brings the lever into the position represented. The generator (D) is furnished with a discharge cock (E) and a charging aperture (M). Figs. X. to XIV. give the design of another apparatus by Mr. Dickerson for intermittent automatic distribution of water on carbide or carbide in water, regulating this distribution by displacement of a gasholder collecting the excess of gas requisite for consumption. Mr. Dickerson rightly remarks that it is a disadvantage to directly govern the distribution of water on the carbide by the bell of the gasholder. In fact, the water-cock may still remain open before displacement of the holder, and thus an excess of water may fall on the carbide, causing a production of acetylene greater than the capacity of the holder. Mr. Dickerson's apparatus is intended to prevent this over-production, and to supply water or carbide to the generator only when the holder has discharged the requisite quantity of gas. Fig. XI. is a modification of the generator as regards placing carbide in water, but the same letters indicate the same parts. We shall describe the operations corresponding to the figures. 1, represents gasholder; 4, the generator; 11, the hopper or funnel conveying water to the generator by the pipe 13 and the fall 16; 12, the pipe joining generator and holder; 5, stop-cock with counter-weight alternately opening and shutting the communication between hopper and generator; 10, a lever-arm united with the cock 5; 2, a chain moving with the holder and working the lever-arm 10. The seat 6 of cock 5 is perforated with two conduits at right angles 7 and 8. This cock turns 90° when worked by the chain of the gasholder. In the position indicated (Fig. XIV.), the holder is at the top of its course, and the counter-weight 9 of the cock is in the position marked in dots in Fig. X. In this case a supply of water fills chamber 7, 8 of the cock; this chamber may be oblong, as in Fig. XIII., to increase the capacity. On the contrary, in the position of the weight 9, marked in full lines in Figs. X and XII., the canal 8 communicates with pipe 13; the supply of water in the chamber 7, 8 has fallen on the carbide, but a new supply fails because rotation of the cock has cut off all communication between the hopper 11 and the generator 4.





The acetylene produced by the reaction of water on the carbide raises the gasholder which then works the seat 6 of cock 5, allowing a new supply of water to enter chamber 7, 8, but without any escape as yet. It is only when the holder has again fallen to position 1 that the water in chamber 7, 8 can fall on the carbide. This amount of water which the cock can contain is not sufficient to produce gas beyond the capacity of the gasholder, and as no more water can be introduced until the holder has been emptied there can be no over-production of gas.

Fig. XI. regards placing carbide in water; in this case it is requisite to previously reduce the carbide topowder. The hopper (11) is then shut by a lid (21) to prevent accidental escape of gas. The carbide falls in the generator the base of which is open; this last dips into a vat where a current of water passes escaping by the overflow (19) carrying away the lime formed. The depth of water in the vat suffices to furnish the requisite pressure for the gas to pass by the pipe (12) into the gasholder. The other arrangements previously described to avoid overproduction are preserved (Génie Civil).

* * *

Films.—There appears to have been a great difficulty in obtaining films for use with the Cinematograph, but Messrs. Watson & Son, of 313, High Holborn, have now about one hundred different subjects in stock, and have set aside a room specially for projecting them so as to enable customers to see the effect before purchasing.

The Invention and Development of the Optical Lantern.

By EDWARD DUNMORE.

CHAPTER VI.

THE gas-bag is a wedge-shaped india-rubber and canvas receptacle provided with a tap at the narrow end, and is placed between boards or skeleton frames, somewhat larger than itself, hinged together at one end, with a cut-out for the tap of the bag; the upper board is provided with a ledge or shelf, upon which weights are placed to supply the necessary pressure, the weights being the usual iron 28 or 56-lb. weights. Two 56-lb. is about right for a 12 or 15 feet screen; the larger the disc the more pressure required and *vice versa.* When we use two bags, one of oxygen and the other of hydrogen, it is best to put them both under the same pressure, which can be done by using three pressure boards, putting one bag above the other, and by some screw rings in the sides and ends of the pressure boards, and a piece of rope passed through them, the bags can be kept in their proper places. Unless some contrivance of this sort is adopted, the scheme of having one bag on the other is rather unmanageable. It is necessary that the taps of the bags should be rather long, and have somewhat large openings to offer as little resistance as possible to the passage of the gas; as a fact, it is important that all jets and tubes for gas should be smooth inside to obtain full power. The gas-bags are made of india-rubber and canvas, and should be quite impervious to the gas. As it unfortunately is one of the qualities of india-rubber to oxidise or, as it is usually termed, perish, after being manufactured it is advisable to test their air-proof qualities before filling with gas, as after being some time in use, the chlorine which is more or less combined with the oxygen when made from potassic chlorate, unless very carefully prepared—even then there may be traces—has a destructive effect on the rubber, besides forming with the oxygen a peculiar compound to which explosions have been attributed. The bags occasionally require washing out with water, and hanging tap downwards to thoroughly drain. This will remove a powder produced by the decomposition of the rubber, and when they are out of use it is a good plan to keep them rolled up and stored in a cool place until required. Both oxygen and hydrogen bags are best filled just before they are wanted, as the shorter time they remain filled the better both for bags and gas. If hydrogen is kept in a bag for some little time it effects an exchange through the substance of the bag, however good it may be, with atmospheric air by exosmotic action, and would, no doubt, in time become a dangerously explosive mixture, without apparently parting with its contents as indicated by the tightness of the bag. My advice to all lanternists is never to keep their bags filled any longer than is absolutely necessary. In this matter, compressed gas in cylinders are much to be preferred, as they can be stored for a long time without deterioration. When using the gas-bags, never suddenly remove the weights, or there will be a suck back, the oxygen may be drawn into the hydrogen bag, the hydrogen into the oxygen, and thus cause an explosion, the mixture of the two gases being highly and dangerously explosive.

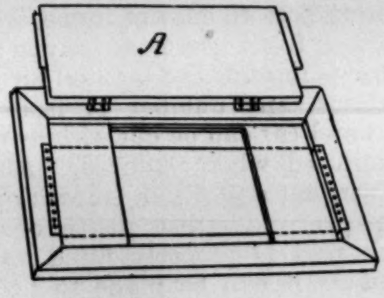
(*To be continued.*)

A Transparency Printing Frame.

By GEORGE KILBURN.

PERHAPS some of the readers of the OPTICAL MAGIC LANTERN JOURNAL have wished for a more suitable printing frame for use when making lantern slides than those in common use. For those in want of such, I can recommend one of my own construction, and one which I have not seen elsewhere.

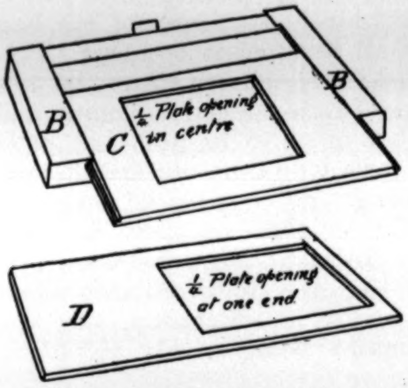
As will be seen by the accompanying drawing it can be constructed at small cost. One important feature in this frame is that it can be made to take different sized negatives, and still be of the same utility as if made for one size only. The one shown is made to take several sizes of negatives, viz., half-plate, stereoscopic, 5 by 4, or quarter-plate. Fig. I.



Back View Fig: 1

shows the back view with quarter-plate laid in position.

To make a frame of this kind, procure some strips of wood—any kind will do—about 1¼ inches wide by ¾-inch thick, and cut them to size required. Along one edge a rabbet must be taken out, then the corners can be fastened, either halved or mitred. If the frame be required for stereoscopic negatives, then lay the negative on back of frame, and take out about ⅛-inch more at each end and 3¼ inches long, as shown by dotted lines in Fig. I. Next, cut a piece of board to fit the opening same as (A), and fix on the hinges; a brass turn button will hold it down when in use. Cover the back with some dark woollen fabric. After finishing the back part, next cut two pieces as in (BB), Fig. II., and take out a rabbet along one edge. A front board (C) must then be cut to fit in rabbet in (BB). Cut out any suitable opening required, and take out sufficient all round the opening to allow negative to rest in. Fasten the end pieces (BB) on, and slide board (C) into its place. Then screw a small brass plate on top edge of frame, Fig. II., put a small brass turn button on bottom edge of frame, which will hold the sliding front board securely in position. If the frame is intended to be used for different sized negatives, any number of front boards same as (C) and (D) can be cut with any desired opening, and used when required. After each part has been cut and fitted, smooth over with fine glass paper, and either polish or varnish. If the back part is properly fitted no springs are required, as it can be made to hold transparency plate firmly without any.



Front View. Fig: 2

For the benefit of those who do not want to go to the trouble of making one in its entirety, they can easily alter any ordinary printing frame to above form. The only alterations needed are the ends at back, which require to be filled up level with sides, and another back hinged on like (A). The front part will require two pieces as (BB), Fig. II., and a front board as (D) or (C) with opening to suit.

* * *

How Photographers may get Orders for Enlargements.

By WILLIAM STOKES.

WHAT I am about to say, I do not claim as original; but as it has been the means of my getting orders for enlargements during the course of my business, it is certainly worth while for those who find their photographic business dull, to try same. The plant—if it may be so called—only calls for the outlay of a few shillings. Into the wall of, say, the developing room, cut a hole, and on the outside fasten a frame with a rabbet, say, 20 by 24, and in this stretch a sheet of tracing cloth to act as a lantern screen. Inside of the dark room there will require to be a blind which can be drawn in order to shut out white light when at work. As soon as a sitter has been taken, quickly make a transparency, and put it, while even wet, into a lantern kept ready inside for the purpose, and allow the sitter to see it for a moment, and the chances are that in the majority of cases an order for an enlargement will follow. Not only will the enlargement be a means of profit, but in nine cases out of ten the sale of a frame also can be counted on.

* * *

Is the Automatic Meter of Benefit to the Lanternist?

By INDEX.

IT will be remembered by readers of the article that appeared on page 148 in last issue, I closed by saying I would reply to the above knotty query in another short paper, but it must be borne in mind that this is but one man's opinion, and should only be taken for what it is worth.

To anyone with the meanest knowledge of mechanics, the above question will read like a misnomer, and to use a Lord-Dundrearism, "means something really different from what it really means."

The error rests with the questioner, for there is no doubt that he wishes to ascertain whether the prepayment meter can be of any particular advantage to a lanternist; and if that is the deduction, then all will agree that it be replied to in the negative, or to be more emphatic—No!

To be precise, the first gas meter that was ever made was an automatic one; it has been automatic ever since, and always will—and must be. The pre-payment meter—or if you prefer it "Penny-in-the-slot"—has all that belongs to an ordinary meter as to its internal parts, with an additional attachment to its index. By dropping a coin into this arrangement the valve of the inlet tube is opened, and allows so many cubic feet of gas to pass through according to value put in. When the money's worth has been consumed the valve shuts off, unless, of course, it is refed.

But surely you say, "that is an automatic contrivance." "Oh, most undoubtedly it is, and moreover a complicated one, only as stated above, that as all gas meters are automatic in their working, it would be better if this were known as the prepayment meter." Therefore, if the question be altered to—"What does a lanternist gain by paying for his gas before he gets it?"—the answer is, "Nothing."

There are two sides to every hedge, and to all arguments. I, therefore, wish to clear up any erroneous impression the above remarks might infer.

It must be understood that there is no attempt here to depreciate the value of these instruments to the thousands of consumers who are in every particular benefited by their invention, and when it is stated that some sixty thousand new customers have been made by one company alone—south of the Thames—during the past five years, that would not have been customers or had the privilege of burning gas in their homes had it not been for this prepayment system, all must readily admit the great usefulness of the "Penny-in-the-slot." These are facts, and facts are proof positive.

The lanternist, as far as may be judged, is but one of the community, and must follow in the ordinary wake. He cannot be singled out for any special advantage over his fellow men. Possibly hundreds of readers have an automatic in a corner of their cellar or other convenient place, and burn therefrom. Those who have can easily find out the cost of coal-gas for a two hours' entertainment with a blow-through jet, if they care to do so; but they can take it for granted there would be change out of a penny.

We live in an automatic age, and if one wants a morning "whiff," a box of matches, a toothpick, or a scarf pin, would you try your weight or know your height, but perhaps you wish your fortune told, and are eager to know the colour of your future wife's eyes, "A penny-in-the-slot" will do it for you. A musical selection, stationery for a letter (stamp included), life-like scenes in the Kinetoscope, a cigar cutter, a packet of Everton toffy, and dozens of other things too numerous to mention, may be had by dropping a penny in the slot. They are very convenient and useful, and furnish the needs for which they were intended.

But there is no "Penny-in-the-slot" about the lantern. We appreciate the automatic inventions now to be found in the lantern market; the bulk of them are a boon to the operator. We are ready to welcome new discoveries that will help to make our exhibitions more attractive.

Up to the present, however, we congratulate ourselves on having steered clear of the penny business. Let us continue to do so.

Lantern Society.

THE Council of this Society on reviewing the work of the past session found that the number and attendance of members showed a somewhat serious falling off; they therefore decided before making any arrangements for a new session to call the members to a special meeting, and to consult with them as to the future of the society. This meeting was held at 20, Hanover Square, on 14th ult., and was presided over by Mr. J. J. VEZEY, the Chairman of the society.

The attendance was small.

The CHAIRMAN requested the Hon. Sec., Mr. J. Bashall, to read the notice convening the meeting, after which he explained its object. He said the condition of the society caused the Council considerable anxiety. It had been their object to carry it on so that it would be of advantage to the members, and would promote the usefulness of the lantern generally. The Council had, however, observed with regret that at the meetings which had been arranged for technical instruction the attendances had been very small, while even at the more popular demonstrations the audiences had consisted largely of visitors. The reason assigned for the absence of members was said to be want of time, because as it had now become the custom for each local photographic society to open a lantern branch, members of such societies found themselves unable to attend the Central Society as well as their own. The Council had endeavoured to introduce subjects of varying interest to the members, thus, during the last session there had been an exhibition of lanterns and new apparatus, a lecture on slide making, a lecture on the lantern as an illustrator of microscopical work, a lecture on the Scottish Alps by Mr. Howie, a demonstration of the Röntgen Rays by Mr. Snowden Ward, and a lecture on Shakespeare's County by Mrs. Snowden Ward, at the last three of which meetings slides of great excellence were shown; there were also exhibitions of members' slides, and of the

American collection. It was impossible in arranging a programme to please everyone, but on the whole members had expressed great satisfaction at the meetings. It was true there had been someone who had made objections in the public press to one of the meetings, but no complaints had reached the Council by direct communication. As the Council simply desired to carry on the society in the interest of the members, and as it was impossible to continue operations without the support of the latter, this meeting had been called so that members could freely express their views and make such suggestions as they thought fit. The Chairman concluded by saying that unless the Council could be assured of a large increase in the number of members it would not be possible to carry through another session.

The CHAIRMAN then read two important letters he had received from gentlemen who could not be present on this occasion, the first from Mr. T. H. Holding, the vice-chairman and one of the originators of the society, who expressed his sincere wish that the society should not be wound up. He considered it had done most valuable work in the past, and its size was quite as large as he expected. He made the following suggestions:—

1. Would it be possible to affiliate the society to one of the existing Camera Clubs?
2. Can the society's meetings be more thoroughly advertised and reported?
3. That a guarantee fund be formed to carry through the season 1896-7.
4. That a little pamphlet be drawn up giving a short sketch of the society's work and projects.

The second letter was from Mr. J. Hay Taylor, the editor of the OPTICAL MAGIC LANTERN JOURNAL, who had acted as the society's auditor, and who had taken a good deal of interest in its operations.

Mr. Taylor gave expression to views which had reached him, and which he thought might be usefully considered in estimating the present position of the society. Some people considered the society was too exclusive; that its present premises were too pretentious; that visitors preponderated at the meetings to the disadvantage of members; and that too many meetings were devoted to the simple exhibition of slides. Mr. Taylor then went on to make suggestions.

1. That the place of meeting should be in a more accessible part of London, and in a room or hall of less pretentions than the present premises.
2. That meetings should be held once a month all the year round.
3. That meetings should be less formal, and that more practical information be given in the working of the lantern.
4. That members who know little of lantern manipulation should be permitted to practice at the society's meetings.

The HON. SEC. then read a statement of the society's progress since its foundation, by which it was shown that the membership in its early days, when the subscription was one guinea per annum, was practically as large as it is now with the subscription reduced to ten shillings.

The HON. TREASURER, Mr. A. R. Sheppee, gave a rough estimate of the present financial position, from which it appeared that if all the outstanding subscriptions were paid there would still be a deficit on the year's working of over £10.

A long discussion then ensued, and many suggestions were made.

Dr. W. G. HOLLOWAY thought the members owed their warmest thanks to the Council for the way in which the society had been conducted. He entirely objected to the proposal to unite the society with any other; he thought more should be done in the way of instructing members in the use of the lantern, including the bi-unial and tri-unial. He thought the society ought to have had an exhibition of the Cinematograph before this, and that it should advertise its meetings more. He distinctly approved of the proposal to form a guarantee fund, and was willing to assist in that way.

Mr. H. SNOWDEN WARD regretted very much the present position of the Council. He considered that the meetings of the Lantern Society were among the most pleasant of any photographic society he attended, and he should be very sorry if they were discontinued. He approved of the guarantee fund, and suggested that each member should undertake to get one or two new members, or pay their subscription. He thought more could be done to make the loan collection useful.

Other remarks were made by Dr. Owen, Mr. Maw, Mr. Reed, Mr. Sheppee, and it was finally resolved—

1. That in any case meetings should not be held oftener than monthly.
2. That a circular be sent to each member asking if he is willing to adopt the suggestion of a guarantee fund, and to undertake to get not less than one new member.
3. That in the event of the replies being unfavourable or not sufficiently encouraging, the Council be empowered to take steps to wind up the society forthwith.
4. That in the event of the society being wound up, the property which has been presented to it shall be placed at the disposal of the donors.

The meeting closed with a vote of thanks to the chairman and Council, proposed by Dr. Holloway.

Wallace and others v. Riley Brothers, New York.

THIS was an application by General Lew Wallace, the author of the well-known book "Ben Hur, a tale of the Christ," Harper Brothers, the publishers, and Walter C. Clark, the owner of the dramatic rights, to restrain Messrs. Riley Brothers (of Bradford and) New York, optical lantern and lantern slide makers, from issuing, or causing to be issued, their set of 72 lantern slides illustrating the story; and from issuing or causing to be issued any epitomised reading of the same. Complainants further claimed £2,000 damages. Messrs. Riley Brothers offered to withdraw the epitomised reading, which had been merely given away with each set of slides sold, but defended the publication of the slides, and resisted the action.

The case came on for hearing in May last, before the Honourable E. Henry Lacombe, Circuit Judge of the Southern District of New York, complainants and defendants being represented by Council. Decision was held over until September. In the result Messrs. Riley Brothers are restrained from issuing the epitomised reading of the story "Ben Hur" within the jurisdiction of the United States, but the application to restrain them from publishing and selling the slides is denied. Messrs. Riley Brothers have therefore gained all that they could expect, inasmuch as they were aware that they were not within their legal rights in publishing in the United States an epitome of a copyrighted book, even though the book was only given as a help to a lecturer who might buy their slides. When they found that this was not acceptable to the author and publishers, however, they at once withdrew the books from circulation, and the matter would have ended there if complainants had not wished to press the injunction for restraining the defendants from publishing the slides, as well as claiming for heavy damages. In both these points they have failed. The complainants relied on the fact that some of the slides were produced from life models, suitably grouped with appropriate backgrounds, so as to present in successive tableaux vivants the principal scenes and incidents of the book, as they would ordinarily be shown on the dramatic stage. These being reproduced by photography, and subsequently presented to public audiences by means of the lantern, accompanied by a public recitation of passages from the book they claimed, constituted a "dramatic representation," and as such were infringements of the dramatic rights which had been sold to Mr. Clark. In giving his decision in favour of the defendants the judge remarked that in the first place he could not be sure that the life models or drawings had been originally prepared specially for the purpose of illustrating the book "Ben Hur," but that even taking it for granted that they were so prepared, it would hardly be contended that no one, except with permission of complainants, might produce and sell copies of drawings, the *motif* of which was suggested in the book.

This case has excited the utmost interest in the United States, where it was regarded as a test case, but it is generally conceded that the decision of the court is in harmony, not only with United States law but with the dictates of common sense.

NEW APPARATUS.

Washers for Cylinder Connections.

Few users of lanterns have not at times experienced more or less difficulty in making a gas-tight connection at the gas cylinder, by reason of some little imperfections either on the cylinder or connecter. With those who get a supply of cylinder washers or plugs this trouble is overcome. The washers or plugs consist of discs of lead which have been spun up at the sides. One is dropped into the cylinder neck, and the connection then screwed down so that this disc lies between the connections, and it being of extremely soft metal readily conforms to the adjacent metals, thus making an absolutely tight joint. These washers are supplied in boxes of six by Mr. J. R. Cave, of 52, Nevill Street, Southport.

WASHING TRAY.

The tray is placed under a stream of water so that it falls on the central division, thence in the half of the tray which is uppermost. As soon as this is filled, the weight of the water causes this division to fall, thus exposing the second division to the stream of water, which in turn gives place to the other. The apparatus is thus automatic. This tray and the following apparatus are manufactured by Messrs. Butcher and Son, of Blackheath.

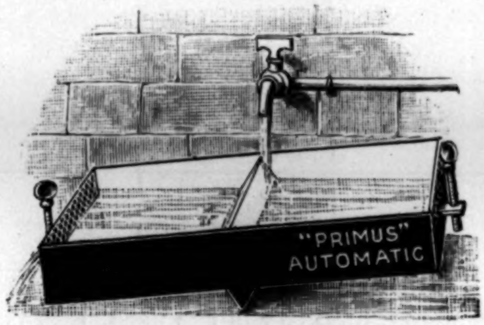
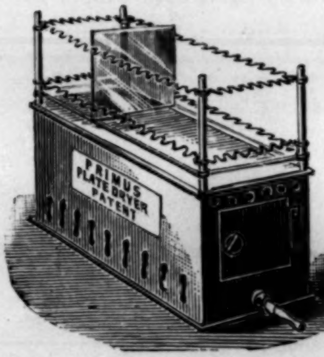


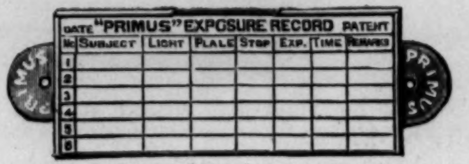
PLATE DRIER.

This appliance enables plates to be quickly dried. It holds 12 lantern plates, 12 quarter plates, or 6 half-plates. In the body is a Bunsen's burner which is attached to the house gas. Care must be taken that the heat is applied gradually.



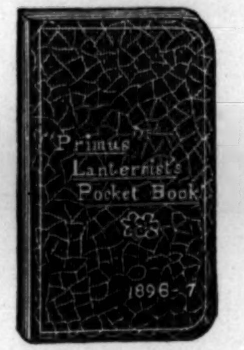
EXPOSURE RECORD.

This record may be attached to hand or other cameras, and upon it the records can be made as shown under the headings. The frame part is screwed on the camera, and in it may be slipped three or four record cards.



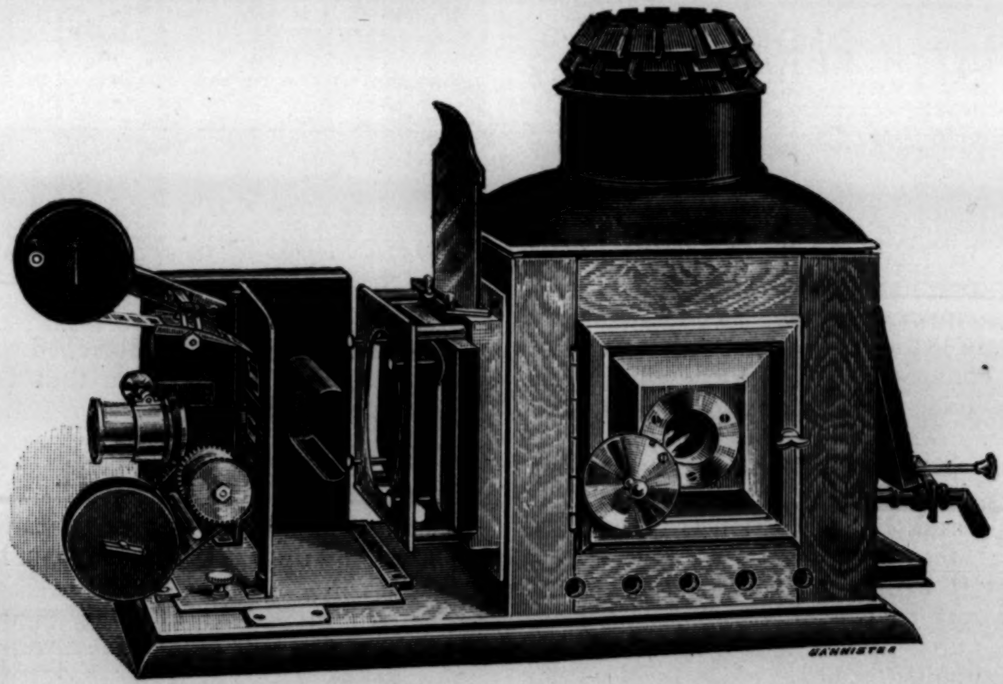
PRIMUS POCKET BOOK.

The Primus pocket book will be found particularly handy for keeping an account of lantern engagements, quantity of gas used, also various requirements for the use of lanternists. The size is 5½ by 3 inches.



WRENCH'S CINEMATOGRAPH.

Without doubt animated photographs will play a very important part in connection with lantern exhibitions during this season, and those who possess the necessary apparatus for showing same will reap a good harvest. A number of different names have been applied to the apparatus by which this effect is produced, but to all appearances the name "Cinematograph" will be that by which it will most generally be known.

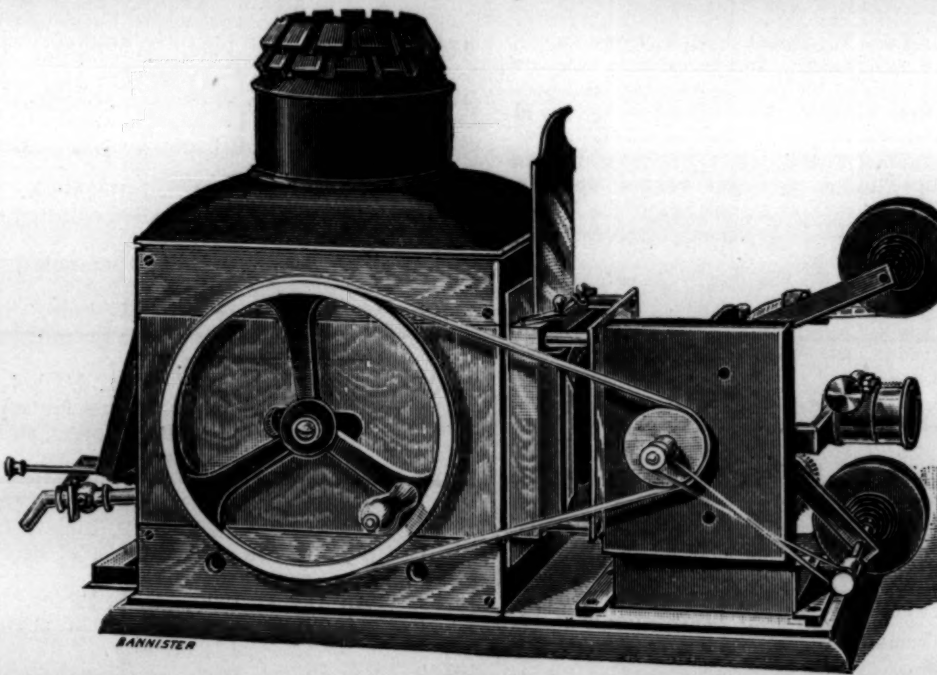


A number of photographs are taken per second of moving objects, and from these transparencies are taken, which are passed by a sort of intermittent motion through a lantern, when the effect seen on the screen is a gradual moving about of the objects as in life. The changing of the various pictures is so quickly effected (several each second) that they appear as one picture endowed with life.

The first public intimation made of this style of effect was in this journal for November, 1889, and at the time our remarks were circulated far and wide by the public press, and we were even subjected to ridicule for making a statement as to the possibility of such. In one London daily paper when quoting the article, it was even hinted at that the editor of the Optical Magic Lantern Journal was the dupe of his own imagination. However, after an interval of a few years the effect has become popular, and will be even more so this season.

For the past year the making of apparatus to show the effects spoken of has practically been a monopoly, and prices ranging from £100 and upwards have been asked and obtained for them. Such prices are now, however, a thing of the past, and owing to an announcement made in our and other columns, the lantern world has been set on edge on hearing that Mr. Wrench, wholesale optician, of Gray's Inn Road, had taken out a patent and was hard at work making a *complete* outfit to retail for £36.

We have had an opportunity of trying Mr. Wrench's apparatus, and were surprised at the quietness with which it worked, the sound being similar to that made by a sewing machine. It works with great smoothness, is quickly charged with a new film, the projected picture is particularly steady, and leaves nothing to be desired. On the side of the body of the lantern is a driving wheel, connected by means of a band with a smaller wheel in the changing apparatus, on which is attached the revolving shutter, which rotates at a high rate of speed. It is during the brief interval of darkness that the changing of the picture is effected by a slight revolution of the toothed drum, shown in the illustration on the previous page, which engages with perforations in the film and thus draws it forward. A good idea of the effect of the opening and closing of the shutter can be obtained by one looking towards a light and opening and shutting the eyes several times per second.



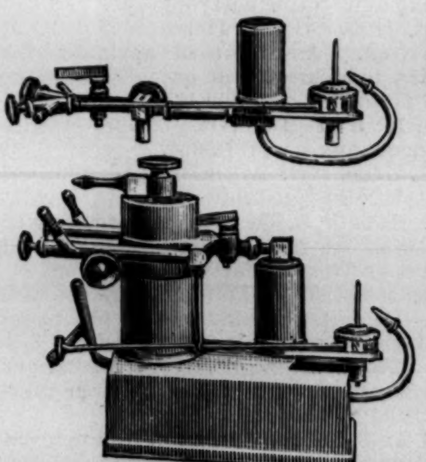
The film to be used is wound on the upper reel shown in illustrations; it then passes over a velvet-lined tilting guide, and in front of the condenser on to the teeth of the drum alluded to, from which it is wound on the bottom reel. Immediately in front of the condenser is placed an alum or water-trough (not shown in illustration) to prevent the heat from injuring the film. This when necessary can be hooked off, the Cinematograph portion lifted away, a front and lens attached, and we at once have an ordinary projection lantern. The complete apparatus is supplied with all these adjuncts, and also includes a powerful mixed jet—in fact, everything except the film itself, and of these there are about one hundred subjects from which a selection can be made.

Editorial Table.

"Early Work in Photography."—London, Dawbarn & Ward, Ltd. By W. Ethelbert Henry, and H. Snowden Ward. One might on reference to the title, imagine that this book treated upon early work (*i.e.* in days gone by) but this is not the case, for it contains instructions for beginners in photography, and as such, matters are put before the reader in a very clear and interesting manner. The book is illustrated with a negative and positive on celluloid, together with numerous diagrams.

Christmas Mounts.—Mr. Emery of 3, Soho-street, W is getting out some pretty and ornamental mounts for photographs, lettered in gold with "Compliments of the Season," and "A Happy Christmas."

Riley Bros. Catalogue.—A large catalogue has been lately issued by this firm. It contains upwards of two hundred pages, about one hundred and fifty of which are devoted to the immense lists of the slides which this firm keep in stock. Lanterns of all varieties are also shown. The latest form of Lawson's saturators introduced by this firm can be used either in a single lantern, side-by-side lantern, or bi-unial. We have recently received one of those saturators, and after a few trials must say we like it immensely, and dissolving with it is simple and certain. We anticipate making considerable use of it.



PATENT INTELLIGENCE.

The following list, relating to current Patent Applications, is compiled expressly for "The Optical Magic Lantern Journal." For further information apply to The Patent Department, "Optical Magic Lantern Journal," 9, Carthusian Street, London, E.C.

No. RECENT PATENT APPLICATIONS.

16080. 21st July, 1896. W. Routledge, A. Rosenburgh, W. MacDonald. Improvements relating to apparatus for taking, viewing, and projecting photographic images in rapid succession to give a life-like effect.

16301. 23rd July, 1896. E. Sandon. Improved means for producing pictorial effects upon a vertical screen on a similar surface.

16303. 23rd July, 1896. G. T. Wynne. Improvements in actino-meters.

16345. 23rd July, 1896. R. Haddan. Apparatus for production of acetylene gas.

16432. 24th July, 1896. A. Schmidt. Improvements in acetylene gas production and apparatus for burning.

16544. 27th July, 1896. J. E. Thornton and E. Pickard. Improvements in cameras and tripods.

16599. 27th July, 1896. J. H. Pepper. Improvements in magic lanterns.

16728. 28th July, 1896. A. J. Boult. Improvements in the production of acetylene gas.

16844. 29th July, 1896. R. P. Pictet. Improvements in the manufacture of acetylene gas.

16847. 29th July, 1896. P. Woog. Improvements in and relating to acetylene generators and lamps.

16866. 30th July, 1896. H. Parson. Photo-plate forceps.

16916. 30th July, 1896. E. Strzelecky. Apparatus for obtaining oxygen and hydrogen from steam by electrolipio.

17038. 31st July, 1896. L. T. Fitz. Improvements in and connected with apparatus for generating and storing acetylene gas.

17049. 1st August, 1896. G. H. Harrison and T. J. Harrison. An improved apparatus for taking photographs in quick succession, and projecting them on the screen.

17131. 1st August, 1896. P. Dondart. Improvements in incandescence oil lamps.

17134. 1st August, 1896. G. Allemans and another. Acetylene gas production.

17194. 4th August, 1896. W. L. Voelker. Improvements in materials for incandescing mantles and processes for manufacturing the same.

17388. 6th August, 1896. T. J. Perrett. Process and apparatus for taking and reproducing photographs with stereoscopic effect.

17505. 6th August, 1896. T. H. Blair. Improvements in or relating to photographic cameras or film-exposing apparatus.

17596. 8th August, 1896. W. P. Thompson. An improved incandescent body or mantle for incandescent gas light.

17646. 10th August, 1896. M. D. Birchwood. An improved acetylene gas generator.

17678. 10th August, 1896. A. C. Fraser. Improvements in process and apparatus for generating and liquefying acetylene.

17714. 11th August, 1896. A. P. Légé & A. D. Pennellier. Improvements in the production and burning of acetylene gas.

17722. 11th August, 1896. G. H. Thomas & B. Whitworth. Improvements in photographic apparatus specially adapted for ferrotype dry plates.

17813. 11th August, 1896. M. Raphael. A new or improved automatic protector for incandescent gas light mantles.

17848. 12th August, 1896. J. P. G. H. Chard & H. Akermann. Improvements in apparatus for projecting zoetropic pictures and the like.

17881. 12th August, 1896. A. Wrench. Improvements in cinematographs.

17904. 12th August, 1896. H. H. Lake. Improvements in and relating to apparatus for generating and utilising acetylene gas for lighting purposes.

17909. 13th August, 1896. I. Renshaw. The unique plate and negative printing out holder for copying photographic negatives on opals, bromides, transparencies, and lantern plates.

18021. 14th August, 1896. J. Jackson. Improvements in and relating to incandescent gas lamps or pendants.

18131. 15th August, 1896. J. A. Michel-Dansac & L. Chassagne. Means for reproducing the colours in photography, suitable also for dyeing and printing.

18163. 17th August, 1896. C. W. Baylis. An improvement in photographic printing frames.

18207. 17th August, 1896. R. P. Pictet. Improvements in the manufacture of acetylene and in apparatus therefor.

18208. 17th August, 1896. R. P. Pictet. Improvements in the purification of acetylene and in apparatus therefor.

18241. 17th August, 1896. E. Crowe. Improvements in bar locks for drawer cabinets and the like.

18228. 18th August, 1896. Philip Kossuth Stern. Improvements in photographic cameras.

18366. 19th August, 1896. J. R. Quain and F. W. Dunlap. Improvements in automatic apparatus for working the "X" or Röntgen rays.

18391. 19th August, 1896. P. Doudart de la Grée. Improvements in incandescence burners for oil lamps.

18493. 20th August, 1896. S. Levin. Improvements in the manufacture of mantles for incandescent gas lighting.

RECENTLY-PRINTED SPECIFICATIONS.

Copies of the following specifications may be obtained by remitting 1/- for each specification to The Patent Department, "Optical Magic Lantern Journal," 9, Carthusian Street, London, E.C.

15360 of 1896. Willson. Calcium carbide.

15013 of 1896. Gilyard and Cousen. Photographic cameras.

2965 of 1896. Bethell. Photographic camera and dark slides.

11708 of 1896. Bauweraerto. Apparatus for the generation of acetylene gas.

13895 of 1896. McDonough. Photographic coloured screens.

Correspondence.

EXCHANGE CLUB.

To the Editor.

SIR,—There are two or three vacancies in the list of members of the Lantern Slide Exchange Club, established last year through your columns, and I invite applications from good workers who would like to join our numbers. The year which is now closing has shown the value of such a club, for not only have the members mutually enriched their collections of slides by exchange, but the quantity of the work generally has improved to a surprising extent. The good workers have taught the others what to aim at. Some of the slides have been really splendid. I shall be glad to give every information to anyone who would like to join our club.

Yours faithfully,
REV. F. PARTRIDGE,
Hon. Sec.

S. Clether Vicarage,
Egloskerry, R. S. O.,
Cornwall.

LANTERN IN NEW ZEALAND—A SUGGESTION.

To the Editor.

DEAR SIR,—For some time past I have been taking your journal, getting it through my booksellers, Wise & Co. For some years I have been greatly interested in lantern work, though I only possess an oil lantern. I have lectured before our Teachers' Institute, and by writing to the Press have done my best to waken interest in lantern teaching, but we labour under so many disadvantages. Until the last month or so there has been no Lantern Agency here, and the one just established is, so far, only dealing in one Home firm's goods, and then the slides are almost all scriptural and limited in number. We cannot get cylinder gas; and saturators, jets, slides, etc., have all to be imported on the strength of the advertisements one sees. Even with reputed firm's goods, this is not always satisfactory—the title of a slide for instance may take one, but I have found out the slide may not be of the educational value anticipated.

It has occurred to me that a system of slide transit can be inaugurated to the advantage both of Home firms and of us in far away New Zealand and Australia. When you receive this, our season will be about over and yours commencing. What is to prevent Home firms from having agencies here, and, just about the conclusion of the Home season, from shipping out 3,000 or 4,000 slides more or less of surplus stock? Many would be sold here and many hired, and the slides remaining could be shipped back in time for the next Home season. If any Home firm thinks well of my suggestion I shall be pleased to do what I can to further the project. I may say I am not a professional (my having only an oil lantern will show that), and have never taken anything beyond barest expenses, and seldom that amount when I have exhibited, so money isn't my object. I have spent a good deal of time, and am willing to spend more, in the endeavour to get the lantern recognised as an educational adjunct.

I am hoping that Stedman's oxygen apparatus and acetylene generators will help us in overcoming what are at present two serious drawbacks—the initial expense connected with a good light, and the compactness of the apparatus to be carried about.

In reference to the use of acetylene gas, I should like to ask a few questions. Are bags necessary? If so, what kind, and what pressure is put on them? Can they be recharged with absolute safety, the light continuing bright the while? What is the candle-power with the apparatus supplied? What is the total cost generator to jet, with supply of calcium carbide, for say a dozen entertainments of two hours each?

Any information you or any of your readers may be pleased to publish or send out will be thankfully received and circulated here; and may result in the placing of orders in time for our next winter season.

JAS. JEFFERY.

Anderson's Bay Public School,
Dunedin, New Zealand.
July 20th, 1896.

[The journal that would have come to hand since you posted your letter will supply answers to your questions about acetylene.—ED.]

A SUGGESTION.

To the Editor.

SIR,—On looking over a list of lantern slides one cannot fail to be struck by the curious anomaly of a large number of readings furnished with sets of views, and numerous effect sets with which not a scrap of information is offered. Surely if printed matter is required in the one case it is equally so in the other. Anyone lecturing on, say, Devonshire or the South Coast, might very well without going out of his way introduce an effect set of the Exeter Theatre fire, or the Eddystone Lighthouse, but it might be no joke to have to hunt up particulars of the date, cause, and damage done by the fire in the one case, or a short account of the various beacons on the Eddystone reef in the other. What I propose is that the price of each effect set should include a printed leaflet giving full particulars of the slides, or better still, that each firm producing effects should issue a pamphlet at sixpence or a shilling containing suitable matter for all their sets. It is the absence of any description combined with want of registration which makes the introduction of effects the same, ridiculous affair it often is.

Yours truly,
G. HASTINGS PHILIP.

FRESH LANTERN SLIDE WORK.

To the Editor.

DEAR SIR,—Adverting to the article by me in the LANTERN JOURNAL for July last, under the above heading, I find that there are several places in this country of the nature of those described in the article referred to. For instance, there is at Fairford the birthplace of the Rev. John Keble, the author of "The Christian Year"; at Gatcombe, Minchinhampton, is the residence of the late Mr. David Ricardo, the author of several famous works on political economy; and at Amberley, near here, I understand there are two places mentioned in that well-known and favourite work entitled, "John Halifax, Gentleman," viz., Rose Cottage, Enderley, and the "quaint hostelry called the Bear"; and to the readers of the last-named book in particular, good lantern slides of such places would probably be of considerable interest, and if such persons would like them supplied I would make the necessary arrangements for their production, provided such places on investigation prove to be what has been said.

Yours faithfully,
ALBERT TRANTER.

A STARTLING HUMOROUS SLIDE.

To the Editor.

SIR,—I have to acknowledge the receipt of four letters which you have been good enough to forward to me from readers of this journal, in response to an article by me, which appeared in the September number. The letters in question ask me the price at which I can supply the set of slides described. I am not interested in a commercial way with respect to lantern apparatus or slides, hence have no slides for sale, and as I took a good deal of trouble to get this particular set I do not intend to issue copies. But I believe I gave explicit instructions as to how the set could be made, and have no intention to enter into any correspondence in connection with same. Correspondents will therefore please take this as an acknowledgment of their letters, and at the same time although I feel flattered at receiving them, I am unable for business reasons to conduct a correspondence on the subject, and can only refer them to the article in question which, I learned from the editor, reached him too late for insertion in his Annual.

Yours truly,
J. DOUMER.

* * *

Notes and Queries.

S. F. M.—Unless we had an opportunity of seeing the lantern microscope, we cannot say where the error (if any) lies. It is probable that you are using it at too long a range. Try it much nearer to the screen than the distance you speak of and if not then satisfactory, write again.

B. W. M. — The aphengoscope will be found very interesting. As you say you have two lanterns, better get the double form, as you can by this means get better illumination. In this journal for January, 1890 (which can be obtained from our publishers), you will find an article devoted to the subject.

Alfred Roberts.—If you refer to a note in the September number of this journal you will find particulars respecting coating material for an opaque screen. Messrs. Field & Co.'s screen mentioned in our "Notes," gives the best illumination of any we have tried.

Charles Haynes writes:—In several shop windows I have seen bottles of fluid put up for the purpose of transferring illustrations printed with printer's ink, the impressions as made from these illustrations are reversed. I have tried all sorts of concoctions but cannot make them answer, can you render me any assistance in this matter. I will gladly send you half-a-crown in return if you can oblige me with same. *Ans.*—In the first place no charge whatever is made for assisting readers. Into about a pint of hot water dissolve about a ¼ of an ounce of soap and add 4 ounces of turpentine. Coat the print and a piece of plain paper with this and press in contact.

H. A. Holliday.—With the burner you suggest you will, with acetylene gas, obtain as much light as you will with an ordinary spirit jet. There is no smell when properly burned. The heat would be about the same as that from a burner of house gas.

John Morgan.—Your letter was received in due course and the enclosure was forwarded to Rev. Partridge of Cornwall, whose letter appears in this issue.

F. Jermyn Smith.—In the majority of cases the address of the patent agents only is given, but Messrs. Airs address is, 84, Hatton Garden, London, E.C.

O. K.—We regret we cannot single out firms in accordance with your request for us to mention the respective pages in the Annual of the best firm from which you can purchase the various apparatus required, on the best terms. We would suggest that you get particulars from the advertisers, and then if we can give you an opinion as to the apparatus best suited to your wants, we shall be pleased to do so.

Walter Graville.—The cabinet is made by Mr. Shaw, 104, Aston Street, Birmingham. It is also sold by Messrs. Butcher & Son of Blackheath.

Geo. Breck (San Francisco.)—We thank you for the marked copy, and shall be pleased to give a description of your firms' novelties, if you will give us an opportunity. Your Mr. Goodyear called on us some months ago, and we mentioned this to him, but did not receive any particulars.

J. B.—(1) Between the back combination of the lens you will find a metal ring, which keeps the lenses apart. If you remove this and put in a thinner one so as to bring the two lenses closer together, you will probably get better definition. If this does not materially improve it, and it is a cheap lens, sell it and get a better one. (2) The advantage of the larger condenser is, that all the light will pass through a square mat if it happens to be nearly the size of the glass. Draw a circle on paper of the size mentioned, and on this lay a sheet of glass 3¼ in. square, and you will at once understand our meaning. The large objective is best for oil, or acetylene gas.

G. C. G.—(1) The oil is at fault, and although you may have bought it for best, it is not;—get the very best kerosene and the trouble will disappear, if the wicks are kept in good order. There is often a difficulty in getting the best oil in villages. (2) Acetylene in preference, either two or three burners (Bray's 0000) placed one behind the other. See advertisement in this journal; the fittings are supplied by the same firm. A few months ago we gave illustrations and particulars such as you appear to require; see the last four or five numbers.

Thorn & Hoddle.—We note your remarks *re* the date of your first exhibiting your acetylene gas apparatus, but cannot prolong the discussion, as no good would result therefrom.

Post Card.—Get such a condenser that when a slide with a large-sized mat is laid upon it, the corners of the mat are embraced within the circle. You do not say what size disc you want, but at 25 feet distance you will require a lens of 8 inches focus to give a disc 9½ feet in diameter. At 12 feet distance the same lens will give a disc of 4½ feet. For your purpose we should suggest a lens either of 8 or 10 inch focus. As economy has to be studied do not get those you name.

J. W. S.—If you wish it with jet attached, 1, 2, or 3 are equally good, and if for a detached jet 4 or 6.

H. N.—(1) The jet is certainly an excellent one. (2) Yes, a good and safe one. There was so much bad feeling displayed, that we decided not to publish the results. After the judges decided, various parties present took exception to the decision.

WE tender our thanks to numerous correspondents for their very flattering remarks in connection with our ANNUAL AND ALMANAC.